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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,133	11/14/2003	Tsuyoshi Ohyama	09792909-5730	3928

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EXAMINER	
SCHECHTER, ANDREW M	
ART UNIT	PAPER NUMBER
2883	

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12/01/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/714,133	OHYAMA ET AL.	
	Examiner	Art Unit	
	ANDREW SCHECHTER	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-10,18-20 and 23-45* is/are pending in the application.

4a) Of the above claim(s) *8-10 and 23-45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 October 2009 has been entered.

Response to Arguments

2. Applicant's arguments filed 8 October 2009 have been fully considered but they are not persuasive. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

The examiner refers the applicant to the detailed discussion in the Advisory Action of 20 October 2009. The previous rejections are maintained, modified as necessary by the amendments to the claims. An additional rejection under 35 USC 112, 2nd paragraph, has been made in order to address the lack of clarity regarding the amended limitation "forming only one retardation film on the alignment film".

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recites “forming only one retardation film on the alignment film”. This is unclear.

First, it is not clear whether this is supposed to rule out providing “an additional retardation layer on the back" as discussed on p. 18 of the specification and apparently referred to in the applicant's arguments [pp. 6-8], or whether this is only supposed to rule out having two retardation layers on the alignment film as the language seems to indicate at face value. For examining purposes, it is assumed that the latter is the case; the language has nothing to do with a possible retardation layer elsewhere than on the alignment film, but only intends to exclude having two or more retardation layers on the alignment film. [It may appear from the applicant's disclosure and arguments that having a single retardation layer in the entire device is a critical feature of the invention, but this is not what the claim language recites.]

Second, it is not clear what is meant by “only one retardation film”. For instance, the applicant's own specification discloses that “the retardation layer is not limited to that having a single-layer structure consisting of the reflective-area $\lambda/4$ layer, and may also have a two-layer structure consisting of a reflective-area $\lambda/4$ layer and an additional

retardation layer which compensates for the chromatic dispersion of the reflective-area λ/4 layer" [p. 19, referring to Fig. 4], so "the retardation layer having a two-layer structure is provided in the reflective area" [p. 20]. So, the question arises, does a "retardation layer having a two-layer structure" count as a single retardation film on the alignment film (within the scope of the claim) or as two retardation films on the alignment film (outside the scope of the claim). This question is relevant to the *Roosendaal* reference, which similarly refers to a "wide band quarterwave foil" which is formed of a two-layer structure having a quarterwave and a halfwave retarder, just like in the applicant's specification. For examining purposes, the examiner assumes that a multiple-layer stack of retardation layers is understood to be "only one retardation film" for the purposes of this claim limitation.

[To be clear, even were the claim language to somehow make clear that such a two-layer stack is outside the scope of the claims, the examiner does not believe that this would be a patentable distinction over the device of *Roosendaal*. Single layer quarterwave films were known in the art, both broadband and less broadband; use of such single layer films in the device of *Roosendaal* would likely have been obvious to one of ordinary skill in the art at the time of the invention, motivated by relative ease of manufacturing (fewer steps required, clearly), which would be a significant benefit even were there to be a trade-off in terms of the quality of the quarterwave retarder.]

Claims 19 and 20 depend from claim 18.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Roosendaal et al.,* U.S. Patent No. 6,731,360 in view of *Kim,* U.S. Patent No. 6,570,634.

Roosendaal discloses [see Fig. 1, for instance] a method of manufacturing a liquid crystal display which has a first substrate positioned opposite a second substrate [inherent, the top substrate in Fig. 1 would be the first substrate, the bottom substrate would be the second substrate] and a liquid crystal layer [12] interposed between the substrates and which has a reflective area [on left] and a transmissive area [on right], the method comprising the steps of forming only one retardation film [16a] on an alignment film discussed below [note that there could be other retardation films elsewhere], patterning the retardation film such that the retardation film remains only in the reflective area [col. 5, lines 22-26, etc.], wherein displayed images are viewing on the first substrate [both reflected images on the left and transmitted images on the right as indicated by the dotted lines]. *Roosendaal* does not (perhaps) explicitly disclose the steps of forming an alignment film on the first substrate and forming the retardation film on the alignment film.

However, *Roosendaal* does disclose manufacturing the patterned quarterwave foil by photo-polymerization of a reactive liquid crystal material, and states that "[these] materials get their orientation from thin polymer alignment films; similar to those used to orientate a liquid crystal layer" [col. 6, lines 4-8]. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to form an alignment layer between the substrate and the retardation film in *Roosendaal*, motivated by *Roosendaal's* teaching that this is the means by which the retardation film gets its orientation.

Regarding the limitation that "only one retardation film" is formed on the alignment film, following the discussion above under 35 USC 112, the retardation film [16a] counts as a single retardation film even though it may be a two-layer stack of quarterwave and halfwave retarders. Also, the additional retardation layer [16b] is not on the alignment film, so it is not relevant to this limitation, regardless of whether this "optional" layer is present or not.

Roosendaal does not appear to disclose that the liquid crystal layer has a phase difference of $\lambda/4$ in the reflective area and $\lambda/2$ in the transmissive area when no voltage is applied or when a voltage is applied. The liquid crystal phase differences are apparently the same in the two areas, in part due to the cell gap being the same in the two areas.

Kim discloses an analogous device with different cell gaps in the reflective and transmissive areas [compare Figs. 3 and 6], such that the liquid crystal has a phase difference of $\lambda/4$ in the reflective area and $\lambda/2$ in the transmissive area in a voltage on or

voltage off state [col. 8, lines 6-8]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such an arrangement in the above device, motivated by *Kim's* teaching that this arrangement provides for higher luminance in the transmissive mode [col. 5, lines 21-23 and see discussion of Fig. 7].

Claim 18 is therefore unpatentable.

The retardation film is composed of a liquid crystal polymer [col. 6, lines 4-8], so claim 19 is also unpatentable.

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Roosendaal et al.,* U.S. Patent No. 6,731,360 in view of *Kim,* U.S. Patent No. 6,570,634 as applied above, and further in view of *Kubota et al.,* U.S. Patent No. 6,771,334 and *Kitagawa et al.,* U.S. Patent No. 6,404,469.

Roosendaal does not disclose that the liquid crystal polymer is obtained by curing an ultraviolet-curable liquid crystal monomer in a nematic phase. *Kubota* discloses an analogous device and teaches that the retardation film with differing regions can be obtained by curing a "UV crosslinking liquid crystal polymer" [col. 10, lines 34-40]. *Kubota* is silent on the nematic phase limitation; *Kitagawa* discloses such a compensator in a nematic phase [col. 3, lines 6-17]. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the retardation layer a liquid crystal polymer of such a composition (UV curable material) in a nematic phase, motivated by *Kitagawa's* teaching that the production process for such sheets is known and they are commercially available (reducing uncertainties and experimentation in

manufacturing), and *Kubota's* and *Kitagawa's* teaching that they allow control of optical characteristics including retardation. Claim 20 is therefore unpatentable.

Election/Restrictions

8. Claims 8-10 and 23-45 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 4 August 2005.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew Schechter/
Primary Examiner, Art Unit 2883
Technology Center 2800
27 November 2009